

TRAINING MANNEQUIN

TECHNICAL FIELD

This invention relates to teaching mannequins and, in particular, to teaching mannequins which simulate many of the tactile sensations of a real human body.

BACKGROUND ART

Mannequins which are available for use as teaching aids are oftentimes quite expensive and, consequently, are not available to many of the institutions which could benefit greatly by having them.

Teaching mannequins should simulate the human body so as to provide the student or trainee with the opportunity to realistically practice and thus become proficient as to the particular technique to be taught. The more natural and life-like in appearance, feel and tactile resistance, the better the teaching mannequin is able to teach the student. Such teaching mannequins prove the efficacy of medical training and reduce the substantial hazards involved in the use of live patients during the teaching process.

It is often difficult, unpleasant and sometimes hazardous to teach or train students to stick needles or other sharp instruments into another human. In many situations the health risk involved does not offset the potential educational benefits. For example, some students must learn how to properly insert a needle into a distressed person's larynx, chest cavity and blood vessels. Conventional mannequins do not give the student the feeling of a real human body in some of these situations and, accordingly, books must be heavily relied upon for teaching purposes.

U.S. patent to Baermann et al. U.S. Pat. No. 3,562,925 discloses a mannequin having a simulated human torso with a chest cavity which is located in a thorax unit covered with a human-shaped chest plate and adapted to be compressed externally to pump blood-like liquid from a simulated heart into a simulated circulatory system. The chest plate corresponds in size and shape to the human chest to help the trainee locate the heart by touching the proper body area upon which to apply compression to massage the heart correctly.

The U.S. patent to Abrahamson et al U.S. Pat. No. 3,520,071 discloses a training simulator including a mannequin attached in operating position on its back to an operating table. Motion of a chest wall is obtained by providing internal structures for simulating the operation of the human lungs. Vocal cords are positioned along a trachea to form a larynx control.

The U.S. patent to Kirikae et al U.S. Pat. No. 4,209,919 discloses a model of a living body including a cranium and organ components including a tongue and an ear made of yieldable material arranged on the main body.

A number of United States patents disclose resuscitation teaching apparatus which takes the form of a teaching mannequin. Such patents include the following U.S. Pat. Nos. 3,199,225 in the name of Robertson et al; 3,916,535 in the name of Hewson; 2,904,898 in the name of Marsden; 3,152,404 in the name of Cheshire et al and 3,562,924 in the name of Baermann et al.

DISCLOSURE OF THE INVENTION

An object of the present invention is to provide a teaching mannequin which is tactilely similar and which is reusable and relatively inexpensive.

Another object of the present invention is to provide a teaching mannequin which simulates the feel of certain bony, cartilaginous and/or blood vessel structures of a human body so that a student can properly insert a needle or other sharp instrument through the skin of the mannequin and into the structure, thereby simulating an actual medical technique.

In carrying out the above objects and other objects of the present invention, a training mannequin is provided for use in teaching. The mannequin comprises at least a torso of a simulating human body including an anatomically correct inner bone structure having a plurality of spaced, relatively hard ribs and a spinal column to define a chest cavity therebetween. An inflatable member is disposed in the cavity wherein the inflatable member substantially fills the chest cavity when inflated. Generating means is fluidly connected to the inflatable member to inflate and maintain air pressure in the member. Skin covers the spaced ribs and is so constructed to permit each of the ribs to be felt through the skin to allow a student to insert an instrument through the skin, between two adjacent ribs and into the inflatable member to deflate the member.

The inflatable member, when punctured with a needle, allows the creation of an auditory sensation of escaping air and/or light pressure.

Further in carrying out the above objects and other objects of the present invention, a training mannequin for use in teaching comprises at least a head and an interconnected neck of a simulated human body skeleton including an anatomically correct inner bone construction having a skull, a jaw and a spinal column. The jaw and the spinal column define a throat cavity therebetween. A relatively hard larynx is disposed in the throat cavity. The larynx has a longitudinally extending passageway extending therethrough. The larynx includes a thyroid cartilage and a cricoid cartilage connected to the thyroid cartilage. The thyroid cartilage and the cricoid cartilage define an aperture communicating the outer exterior surface of the larynx to the passageway. Skin covers the larynx wherein the skin is so constructed to permit the aperture between the thyroid cartilage and the cricoid cartilage to be felt through the skin to allow a student to insert an instrument through the skin, through the aperture and into the passageway.

Preferably, a resilient material such as a plastic packaging material is disposed between the bone structure and the skin to further simulate a human body.

Also preferably, simulated blood vessels containing simulated pressurized blood are disposed within the teaching mannequin so that the pressurized blood can be tactilely sensed through the skin by a student.

The advantages of a teaching mannequin as constructed above are numerous. For example, such a teaching mannequin is usable by a large number of students at a relatively low cost. Also, such a teaching mannequin has the tactile sensations of a human body by providing substantially anatomically correct bony and/or cartilaginous structures therewithin. In this way, the students is capable of finding various blood vessels, apertures and passageways between and among